



CONVERTEON™ Family

AT-CM70S Media Converter Line Card

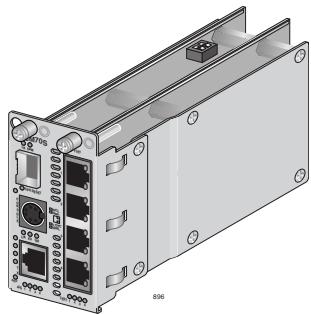
Installation Guide

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Overview

The AT-CM70S, see below, is a 10/100 Mbps Ethernet copper-to-fiber media converter line card with Time Division Multiplexing (TDM) (T1/E1) transport, in addition to regular Ethernet traffic along with OAM link management capability. This line card offers support for 1.544 Mbps (T1) and 2.048 Mbps (E1) services - with complete synchronization for toll-quality transport of voice, video, and data. It also accommodates traditional testing equipment currently used on SONET/SDH equipment for testing T1/E1 services.

The AT-CM70S line card can be installed in the Converteon™ Media Converter chassis, either the AT-CV5000 or the AT-CV1200. The line card features one small form-factor pluggable (SFP) transceiver slot, one copper twisted pair port, four T1/E1 ports, and one console (Mini-DIN) port. The SFP slot can accommodate one SFP transceiver that operates at a fixed operating speed of 100 megabits per second (Mbps). The twisted pair port has an RJ-45 connector with a maximum operating distance of 100 meters (328 feet) and operates at a speed of 10 or 100 Mbps. The line card is hot-swappable into and out of the chassis.



Related Documents

This installation guide is an abbreviated version of the installation procedure. For details on the components, features, and functions of this product, refer to the following documents on our web site, www.alliedtelesis.com:

- ❑ *AT-CV5000 Media Converter Chassis Installation Guide*
PN 613-50580-00
- ❑ *AT-CV1200 Media Converter Chassis Installation Guide*
PN 613-000331
- ❑ *Converteon™ Media Converter Line Cards Reference Guide*
PN 613-50581-00
- ❑ *AT-S70 Management Software User's Guide*
PN 613-50617-00

Package Contents

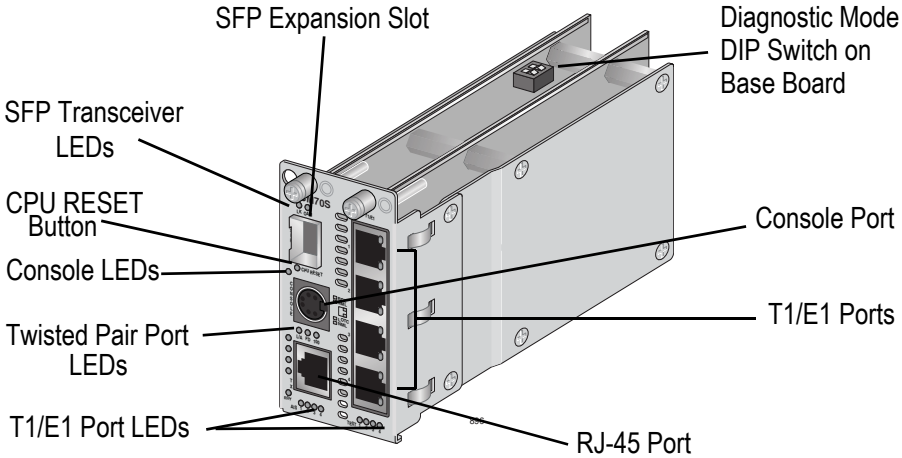
Make sure the following items are included in the shipping package. If any item is missing or damaged, contact your Allied Telesis sales representative for assistance.

- ❑ One AT-CM70S Line Card
- ❑ This Installation Guide and Warranty Card

AT-CM70S Line Card Components

The AT-CM70S line card features the following components:

- ❑ One SFP slot (SFP transceiver sold separately)
- ❑ One 10/100Base-T twisted pair port with an RJ-45 connector
- ❑ Four T1/E1 ports with RJ-48 connectors
- ❑ One RS-232 Serial local console interface with 8-pin Mini-DIN connector
- ❑ One DIP switch
- ❑ LEDs



Note

If an AT-CM70S line card is used in an AT-CV5000 chassis, it can be managed either from its local console port or from the console port on the AT-CV5M01 CPM module. However, if it is used in an AT-CV1200 chassis, it can only be managed from its local console port, as there is no room for an AT-CV5M01 CPM module.

Features

The AT-CM70S line card is designed to support Link Test and Operations Administration Maintenance (OAM) capability as being standardized in IEEE 802.3ah working group to support extended diagnostic services. The DIP switches are used to set these features.

For additional information on this line card, refer to the *Converteon™ Media Converter Line Cards Reference Guide* posted on our web site, www.alliedtelesis.com.

SFP Slot, Twisted Pair Port, T1/E1 Ports, and RS-232 Serial Port

The AT-CM70S line card features one SFP slot, one 10/100Base-T twisted pair port, four T1/E1 ports, and one RS-232 Serial port.

The SFP slot will accept one SFP transceiver that operates at a fixed operating speed of 100 Mbps.

The twisted pair port has an RJ-45 connector with a maximum operating distance of 100 meters (328 feet) and operates at a speed of 10 or 100 Mbps.

Each T1/E1 port has an RJ-48 connector.

The RS-232 Serial port has a mini-DIN connector.

LEDs

The following table lists the surface-mount diagnostic LED's provisioned on the Mezzanine Board and are viewable through the right side of the line card front panel.

| LED | Color | Description |
|------------------|-------|---|
| RCL [1 to 4] | Amber | Receive Carrier Loss occurred on the T1/E1 port. |
| | Green | The T1/E1 port is operating normally (NML) and has no Receive Carrier Loss. |
| LOTC [1 to 4] | Amber | Loss of Transmit Clock occurred on the T1/E1 port. |
| | Green | The T1/E1 port is operating normally (NML) and has no Loss of Transmit Clock. |
| AIS [1 to 4] | Amber | The T1/E1 has received Unframed All Ones. |
| | OFF | The T1/E1 port is operating normally (NML) and no AIS received. |
| TEST [1 to 4] | Green | T1/E1 port is synchronized to PRBS test stream: 2 ¹⁵ -1 (E1) or QRSS (T1). |
| | OFF | PRBS test stream not detected on the T1/E1 port. |

The following table lists the line card status and basic alarms LED’s provisioned on the Base Board and are viewable through the left side of the line card front panel.

| LED | Color | Description |
|--|----------------|---|
| RDY | Green | The line card has passed diagnostics. |
| | OFF | The line card has not passed diagnostics. |
| L/A | Green | The TX port has established a valid link. |
| | Blinking Green | The TX port has detected TX/RX activity. |
| FD | Green | The TX port is operating in full-duplex mode. |
| | OFF | The TX port is operating in half-duplex mode (intermittently ON when there is collision). |
| 100 | Green | The TX port is operating at 100 Mbps speed. |
| | OFF | The TX port is operating at 10 Mbps speed. |
| LK | Green | The SFP port establishes a valid link. |
| | OFF | The SFP port has no link. |
| CONSOLE (applies to AT-CV5000 chassis only) | Green | The line card is managed from its local console. |
| | OFF | The line card is managed from the CPM module located in the rear of the chassis. |
| OAM | Green | The OAM mode is enabled (visible or bypass) and can be set by the DIP switches. |
| | OFF | The OAM mode is disabled. |

DIP Switches

The AT-CM70S line card features only the Diagnostic Mode DIP Switch, which is located on the base board.

The table below lists the positions of the DIP switch.

| Operating Mode | DIP 1 | DIP 2 |
|--------------------------------|-------|-------|
| Link Test (non-OAM) | OFF | X |
| OAM Bypass | ON | OFF |
| OAM Visible | ON | ON |
| Manufacturing Default Settings | OFF | OFF |

“X” means the DIP switch position could be either ON or OFF.

Installing an AT-CM70S Line Card

Note

The Converteon™ line cards can be installed in any of the line card slots located on the front panel of the Converteon™ chassis.

To install an AT-CM70S line card, perform the following procedure:



Caution

Before installing an AT-CM70S line card, refer to the appropriate *Converteon™ Series Chassis Installation Guide* and/or the *Converteon™ Media Converter Line Cards Reference Guide* the for electrical safety and emission information.



Caution

Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. A line card can be damaged by static electricity.

1. Remove the Converteon™ line card from its shipping package and store the package in a safe place.
2. You must use the original package if you need to return the unit to Allied Telesis.
3. Select two empty line card slots adjacent to each other in the AT-CV5000 chassis for the card.
4. Remove the AT-CV5PNL1 blank slot covers from the selected slots.

Keep the blank slot covers in a safe area in case you remove the line card. The blank slot covers are used to keep dust from getting into the chassis and maintain proper airflow, cooling, and ventilation throughout the chassis.
5. Locate the alignment guides in the chassis slot.
6. Align the back edge of the line card with the alignment guides located inside the slot. Avoid touching the line card components.
— For the AT-CV5000, align with the top and bottom alignment guides.
— For the AT-CV1200, align with the left and right alignment guides.
7. Slide the line card until the front of the card is flushed with the front of the chassis.
8. Use a Phillips screwdriver to tighten the captive screws on the line card.

Note

Always tighten the captive screws to secure the line card to the chassis. This help ensure that the connectors at the back of the line card are securely connected to the backplane.



Caution

When used in the AT-CV1200 chassis, make sure the ground lug is attached prior to operating the AT-CM70S line card. For grounding instruction, refer to the *AT-CV1200 Chassis Installation Guide*.

Removing an AT-CM70S Line Card

To remove an AT-CM70S line card, refer to the *Converteon™ Media Converter Line Cards Reference Guide* for instructions.

Technical Specifications

Physical, Environmental, and Electrical Rating

| | |
|-----------------------------|---|
| Dimensions (H x W x L) | 1.71" x 2.89" x 5.1" (4.4 cm x 7.3 cm x 13.0 cm) |
| Operating Temperature | 0° C to 40° C (32° F to 104° F) |
| Storage Temperature | -25° C to 70° C (-13° F to 158° F) |
| Operating Relative Humidity | 5% to 90% RH (non-condensing) |
| Storage Relative Humidity | 5% to 95% RH (non-condensing) |
| Operating Altitude Range | Up to 3,048 m (10,000 ft) |
| MTBF (Telcordia Standards) | 670,000 hrs |
| Power Consumption | 8.5 watts |
| Pluggable Slot Type | SFP |

Electrical Safety and Emission Statement

Standards: This product meets the following standards when installed in compliant host equipment.

| U.S. Federal Communications Commission |
|--|
| RADIATED ENERGY Note: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Note: Modifications or changes not expressly approved of by the manufacturer or the FCC, can void your right to operate this equipment. |

| Industry Canada |
|---|
| This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. |

| | |
|--|---|
| Emission | FCC Class A, EN55022 Class A, VCCI Class A, C-TICK, CE |
| WARNING: | In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. |
| Immunity | EN55024 |
| Electrical Safety | UL60950-1 (cUL _{us}), EN60950-1 (TUV), CAN/CSA C22.2 No. 60950-1 |
| Telecommunications: FCC Part 68 (TIA/EIA/IS-968); Industry Canada CS-03 ACTA Product ID – US: A5TDWNANAT-CM70S Industry Canada Registration – IC: 3336-ATCM70S | |

FCC Part 68 Customer information

- a) This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the side plate of the chassis of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.
- b) The following are required when the customer orders service from the local telephone company:

Universal Service Order Codes ("USOC") for the Equipment: RJ48C
Facility Interface Code ("FIC"): 04DU9.1SN
Service Order Code ("SOC"): 6.0N
- c) A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.
- d) If this equipment, model AT-CM70S causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
- e) The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.
- f) If trouble is experienced with this equipment model AT-CM70S, for repair or warranty information, please contact:

Allied Telesis Inc.
Technical Support
19800 North Creek Parkway, Suite 200
Bothell, WA 98011
1-800-428-4835
www.alliedtelesis.com

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.
- g) This product is not intended to be repaired by the customer (user).
- h) Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
- i) If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this US: A5TDWNANAT-CM70S does not disable your alarm equipment. If you have question about what will disable alarm equipment, consult your telephone company or a qualified installer.